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NRO REVIEW COMPLETED

5 September 1962

MEMORANDUM FOR : The Record

SUBJECT : CORONA/ARGON Film Degradations

1. In the past three months degradations have been experienced in imagery on CORONA film and are expected on the current ARGON mission film. The degradations are a fogging effect caused in the main cameras in CORONA from an electro-static discharge and in the CORONA framing camera from nuclear radiation. Radiation measurements made during the ongoing ARGON mission indicate considerable fogging is to be expected when that film is recovered.

2. In CORONA, the electro-static fogging was first noticed in Mission 9037, 22 June, and became worse through four succeeding operations. Mission 9044, 27 August, which incorporated curative measures has alleviated but not eliminated this problem. Further fixes are being prepared for the next CORONA launch scheduled 8 September.

3. The CORONA framing camera employs a more radiation sensitive film emulsion than the main cameras and although plagued with mechanical malfunctions has produced evidence of severe radiation fog correlatable with passage through the South Atlantic hot spot. There were also a very few individual frames of main camera film effected by this same radiation.

4. In the ARGON mission now underway extensive instrumentation and procedures were invoked to provide early information on radiation levels experienced. At this writing, data from seven passes going through the South Atlantic hot spot have been reported. The satellite was expected to pass through the radiation area some 24 times in its four day life. Operational factors and equipment failure prevent data reporting from each of these passes, however, some information on flux intensities and locations is being prepared. It appears that the hot area extends further eastward than as given informally by NASA.

5. If present fears are confirmed it will be necessary to add shielding to ARGON payloads to achieve successful results with present radiation levels; if these increase significantly the same will become true

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in CORONA. Studies are underway now to incorporate shields in both payloads to overcome radiation fog and if these can be engineered as is expected should protect both ARCON and CORONA film to significantly greater radiation levels than now exist.

SIGNED

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